INSECTS OF MICRONESIA
Diptera: Asteiidae

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The Asteiidae is a small family of delicate, small, and seldom collected flies which are suggestive on the one hand of Drosophilidae and on the other of Anthomyzidae. Characteristic genera have the second vein greatly shortened and bent forward to join the costa at or slightly beyond the juncture of the first vein with the costa. In a few genera which are not so readily associated with the family Asteiidae, the second vein is longer. As might be expected, there is difference of opinion on the systematic position of some of these.

So little is known of the family throughout most of the Pacific region, and indeed for most of the world, that little comment can be made in addition to the species descriptions. Species with the hind cross vein absent are predominant in the Pacific as far as present knowledge is concerned. The genus *Asteia* is particularly well represented, as shown in the following table:

Table 1

HIND CROSS VEIN ABSENT	HIND CROSS VEIN PRESENT
Asteia: 23 species Six Formosa, five Marquesas, three each Hawaii, New Zealand and Micronesia, and one each from Fiji, Tahiti, and Austral Islands	Astiosoma: Two species Australia, Okinawa
Bryania: One species Hawaii	Leiomyza: One species Australia
Nothoasteia: One species Australia	Sigaloessa: One species Society Islands

Several genera in the Pacific are anomalous groups whose family relationship is uncertain and subject to considerable difference of opinion. *Stenomicra* Coquillett (hind cross vein present), which is possibly an aberrant asteiid, though placed in the Anthomyzidae by recent authors, contains a number of Pacific species. *Nannodastia* Hendel, with hind cross vein absent, is strongly

suggestive of the Asteiidae, but is actually an ephydrid. It was based on one species from Formosa and was placed by its author, an eminent authority on the acalypterate Diptera, in the family Ephydridae.

It is possible that *Bryania bipunctata* Aldrich should be included in *Asteia,* though the habitus is notably unlike that of *Asteia.* The two rows of acrostical hairs at first appeared to be an unusual feature, but the discovery in Truk of an otherwise typical *Asteia* with the same character lessened its value as a generic character. However, for the time being at least, *Bryania* is recognized as a distinct genus, though for convenience it is included in the following key to *Asteia.*

No species of the family has hitherto been recorded from Micronesia. Three new species are described here, based on a total of 48 specimens, all but two of which are from the Carolines. Two extra-limital new species are also described in this paper. A new *Asteia* from the Austral Islands is included in order to make the key to the species of the Pacific region as complete as possible at this time. The other new species, from Okinawa, is significant in recording the occurrence close to Micronesia of another genus of the family, *Astiosoma* Duda.

The small size of the group makes unnecessary a tabular presentation of the distribution, but for convenience of reference the Micronesian species may be summarized as follows:

1. *Asteia acrosticalis*: Carolines (Truk, Ponape, Elato, Lamotrek, Palau).
2. *Asteia atrifacies*: Carolines (Ponape), Marianas (Guam, Saipan).
3. *Asteia kraussi*: Carolines (Satawal I.), Marianas (Guam, apparently same species).

Genus **Asteia** Meigen

Asteia Meigen, 1830, Syst. Beschreib. Zweifl. Insekten **6**:88 (type: *Asteia amoena* Meigen, by designation of Westwood, 1840).

This cosmopolitan genus is now represented in the Pacific region by 23 species, far more than are known from the rest of the world. The apparent proliferation of the species has yielded some unusual characters, compared with the relatively uniform habitus of most non-Pacific species. However, it appears to me to be unjustified to erect new genera on the basis of the unusual characters, as Enderlein did for *A. decepta* Becker from the Canary Islands and *A. sexsetosa* Duda from Formosa. The uniqueness of the so-called generic characters of these last-named species disappears when one considers all Pacific species with their various combinations of characters.

Except for *A. sexsetosa* and *A. decepta,* which have three and four pairs of dorsocentral bristles, respectively, the species of *Asteia* in the rest of the world are characterized by two pairs of strong dorsocentrals. In the Pacific

area, however, a majority of the species (12 out of 23) have three pairs and two have four pairs, leaving nine with the "typical" number. Species with two and three pairs occur together across the Pacific, from Formosa to Hawaii and the Marquesas. Most species of *Asteia,* though not all, have a broad white band across the lower face. Typically the main trunk of the arista is somewhat zigzag, with long branches arising at the angles, but in some species these are short, and occasionally minute. In three of the Pacific species known to me—*A. atriceps* Malloch from the Marquesas, *A. nudiseta* Sabrosky from Hawaii, and *A. kraussi,* new species, from the western Carolines—the arista is absolutely bare and straight. Three of the Pacific species, *A. apicalis* Grimshaw, *A. hawaiiensis* Grimshaw, and *A. nudiseta* Sabrosky, all from Hawaii, have 1 + 2 notopleural bristles, though the characteristic formula in all other species known to me is 1 + 1. Short and poorly distinguished posterior intra-alar bristles are found in many Pacific species. Lastly, *acrosticalis,* new species, from the Carolines and *A. nigriceps* Bezzi from Fiji display the unique feature of two rows of acrostical hairs on the anterior part of the mesonotum. Acrosticals are absent in all other species known to me, unless *Bryania bipunctata* Aldrich be included in the genus *Asteia.*

Color may not be a character of fundamental evolutionary significance, but it may provide some clue to species relationships. At any rate, it is interesting to observe the general groupings in the Pacific area:

Both mesonotum and scutellum black: Eight species from the southeast Pacific (Marquesas, Tahiti, Austral Islands, New Zealand), one species from Formosa.

Mesonotum black, scutellum black with yellow apex: Three species from Hawaii, one from Formosa.

Mesonotum black, scutellum yellow: One species from Fiji, six species from the western Pacific (four from Formosa, one from the Carolines, and one from the Carolines and Marianas).

Mesonotum with yellow ground color, scutellum yellow: Two species from the Marquesas, one from the western Carolines (and possibly Guam). If *Bryania* is considered an *Asteia,* it will fall into this category.

The new species described below have the following characters in common, which will not be repeated in the descriptions: a single pair of strong, slightly reclinate orbital bristles, ocellars proclinate, postverticals divergent but minute, hairlike and difficult to see, notopleural bristles 1 + 1. The wing venation is typical of *Asteia,* as figured by Curran (1934, Families and Genera of North American Diptera, p. 328, fig. 3) except that these new species have the second vein shorter and ending in costa with or barely beyond the first vein, thus eliminating the second costal sector.

The key is based on the holotypes of *Bryania bipunctata* and eight species of *Asteia,* syntypes of three species, paratype material of three other species

(*A. dimorpha, A. minor,* and *A. tarsalis*), and determined material of *A. apicalis.* I am indebted to Dr. F. van Emden for information on the types of *A. nigriceps* and *A. hawaiiensis,* which enabled me to place them in the key, and to Dr. F. Peus for the loan of syntypes of three of Duda's species from Formosa. Only Duda's *A. nigrithorax, A. megalophthalma,* and *A. nigrohalterata,* all from Formosa, have been included from descriptions alone.

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The following symbols indicate the museums in which specimens are stored: US (United States National Museum), BISHOP (Bernice P. Bishop Museum), KU (Kyushu University), and CM (Chicago Natural History Museum).

Key to Pacific Species of Asteia and Bryania

(Three New Zealand species not included; see notes)

1. Entire thorax and the long, conspicuous orbital plates dull, heavily pruinose; front in profile well produced, projecting beyond eye almost the length of third antennal segment; parafacials broad; mesonotum with two rows of acrostical hairs on anterior three-fifths (Hawaii)..**Bryania** Aldrich (one species, *B. bipunctata* Aldrich)

   Thorax shining, either polished or only finely pollinose, if the latter usually sparsely so; front weakly or not at all projecting; parafacials usually linear; acrostical hairs usually absent[1] (*Asteia* Meigen)........ 2

2 (1). Two pairs of dorsocentral bristles........ 3
Three pairs of dorsocentrals........11
Four pairs of dorsocentrals; arista bare........19

Two pairs of dorsocentrals

3 (2). Face below with conspicuous white cross band........ 4
Face yellow, without white cross band (Marquesas)....**A. marquesana** Malloch

4 (3). Notopleural bristles 1 + 2; scutellum black basally, yellow apically........ 5
Notopleural bristles 1 + 1[2]; scutellum either all black or all yellow........ 6

5 (4). Arista only slightly zigzag, with minute side hairs; legs predominantly yellow, the hind femur weakly infuscated toward apex, and tarsi brown, at least distally (Hawaii)........**A. apicalis** Grimshaw

Arista zigzag with distinct side hairs, each slightly over one-third the diameter of third antennal segment; legs partly infuscated, including apex of fore femur, whole of fore tibia and fore tarsus, and more or less of mid and hind femora (Hawaii)........**A. hawaiiensis** Grimshaw

[1] The only exceptions known to me are *A. acrosticalis*, n. sp., from the Carolines and *A. nigriceps* Bezzi from Fiji.

[2] Notopleurals unknown for *A. nigrithorax* and *A. megalophthalma* from Formosa, but they can be placed here on the basis of the color of the scutellum. Presumably the notopleural formula is the typical 1 + 1.

6 (4). Scutellum entirely black.. 7
Scutellum entirely yellow.. 8

7 (6). Thorax black; halter yellow (Formosa)........................**A. nigrithorax** Duda
Mesonotum black, pleuron yellow; halter knob black (Tubuai or Austral Islands)..**A. australis**, n. sp.

8 (6). Mesonotum anteriorly with two irregular rows of short, dark, and inconspicuous acrostical hairs; cheek yellow.. 9
Mesonotum without acrostical hairs..10

9 (8). Species from the Carolines (see discussion of relation to *nigriceps*)..**A. acrosticalis**, n. sp.
Species from Fiji..**A. nigriceps** Bezzi

10 (8). Pleuron entirely yellow; cheek yellow; mesonotum smooth and polished, not pollinose (Formosa)..**A. curvinervis** Duda
Pleuron with black spots on sterno- and hypopleuron; cheek linear, black anteriorly, brown posteriorly; mesonotum thickly pollinose, though somewhat shining (Formosa)..............................**A. megalophthalma** Duda

Three pairs of dorsocentrals

11 (2). Arista with long side branches; notopleural bristles 1 + 1........................12
Arista bare and straight; notopleural bristles 1 + 2 (Hawaii)..**A. nudiseta** Sabrosky

12 (11). Scutellum yellow, at least in part; face unicolorous, either black or whitish yellow, not with white cross band set off by black margins above and below 13
Scutellum black; face below with conspicuous, broad, white cross band, margined with black above and below..16

13 (12). Face black or brown; knob of halter black; bristles black in *A. atrifacies* (unknown for *A. nigrohalterata*)..14
Face entirely white or yellowish, down to a narrow peristomial area; halter entirely pale yellow; at least the thoracic bristles pale yellow..........15

14 (13). Antenna black; face dull black, covered with brown and gray pollen; legs yellow; bristles black (Guam, Saipan, Ponape)..................**A. atrifacies**, n. sp.
Antenna yellow; face shining brown; legs with fore and mid femora and all tibiae black, hind femur black in part (Formosa)....**A. nigrohalterata** Duda

15 (13). Pleuron whitish yellow up to narrow brown stripe below notopleural rim; legs and scutellum pale yellow (Formosa)........................**A. sexsetosa** Duda
Pleuron almost entirely shining brown; legs marked with black, at least the fore femur and tibia so colored; scutellum broadly brown at base above (Formosa)..**A. nigripes** Duda

16 (12). Wing clear, veins slender, brown or yellow..17
Wing membrane obviously brownish, veins heavy and dark brown; pleuron and legs predominantly black; male interfrontal stripes unusually short, extending from vertex only to level of median ocellus................................18

17 (16). Legs yellow; front dull except for glossy upper orbits; the narrow interfrontal stripes of male short, extending from vertex barely to level of median ocellus (Society Islands)..**A. societas** Malloch
Legs with femora and tibiae more or less infuscated; front entirely shining, though centrally not as glossy as upper orbits; interfrontal stripes of male long, extending anteriorly to a level over half way between median ocellus and anterior margin of front (Marquesas)....**A. minor** Malloch

18 (16). Polished upper orbits unusually broad, each one-third breadth of front; hairs along lower cheek margin relatively short and weak, the longest less than half length of vibrissa; arista with four branches, including apical fork (Marquesas)..**A. dimorpha** Malloch

Polished upper orbits narrower, not one-third the breadth of front; several of hairs along lower cheek margin long, strong, and bristle-like, three-fourths length of vibrissa and nearly as strong; arista with five branches, including apical fork (Marquesas).......................**A. tarsalis** Malloch

Four pairs of dorsocentrals

19 (2). Halter yellow; third antennal segment infuscated distally (Satawal I., western Carolines; ? Guam)...**A. kraussi**, n. sp.

Halter knob black; antenna entirely pale yellow (Marquesas)...................... ....**A. atriceps** Malloch

Three New Zealand species have not been included in the above key. All have three pairs of dorsocentral bristles and will key to couplet 11. In *A. levis* Hutton, the arista is described as bare, and in *A. tonnoiri* Malloch and *A. crassinervis* Malloch as "short-haired" and "with very short sparse hairs," respectively.

Asteia sexsetosa Duda.

Asteia sexsetosa var. *albifacies* Duda, 1927, Deutsche Ent. Zeitschr. **1927**: 129 (in key), 133, fig. 3 (Formosa), new synonymy.

Duda described the new species *A. sexsetosa* as consisting of three varieties, *albifacies, nigripes,* and *nigrohalterata,* but he did not specify a nominate form. Variety *albifacies* is the only one described in detail and figured, and hence it may logically be regarded as the typical form of the species. Four syntypes (Zoologisches Museum, Berlin) have been studied.

The "varieties" *nigripes* and *nigrohalterata* (op. cit., pp. 129, 134) are undoubtedly distinct species and are so recognized here (new status).

DISTRIBUTION: Formosa.

Asteia societas Malloch, 1933, B. P. Bishop Mus., Bull. **113**: 91 (Tahiti).

The original publication did not specify types or number of specimens, though a male was labeled "type" by Malloch in the collection, and that sex was described in detail. Opinion may differ on the status of a labeled but unpublished type; to fix the status definitely, I designate and have so labeled the male as lectotype (BISHOP) and the one female associated with it as lectoallotype (US). The male is dated "8-23-28" (misread by Malloch as 9-23-28); the female, "IX-11-28."

Asteia australis Sabrosky, n. sp.

Species with two pairs of dorsocentral bristles, mesonotum and scutellum black, pleuron and legs yellow.

Female: Predominantly black, as follows: Front (except for obscurely yellowish anterior margin), dull upper face, narrow and polished oral margin, clypeus, arista, occiput except lateroventral corners, the shining though thinly pollinose mesonotum and scutellum,

knob of halter, postscutellum, and bristles; antenna brownish yellow; lower two-fifths of face occupied by broad white cross band; dorsum of the chiefly membranous abdomen with several broad brown bands and distally with two brown spots; other areas yellow.

Front slightly longer than broad, smooth and polished, the broad upper orbits especially glossy; cheek sublinear; lower portion of face (the white cross band) convex and slightly projecting in profile; second antennal segment dorsally with long bristle-like seta on distal margin; arista weakly zigzag, with five or six short branches (counting apical fork), the branches not as long as distance between their bases; orbital and inner and outer vertical bristles strongly developed, the outer much longer than the inner; ocellars weak but distinct; vibrissa strong, the hairs along lower cheek margin weak and inconspicuous.

Thorax with two pairs of strong dorsocentral bristles, 1 + 1 notopleurals, slightly weaker than dorsocentrals, one pair of strong apical scutellars, and two strong sternopleurals, the subapical scutellars present only as weak, scarcely visible hairs; no acrostical hairs. Wing with second vein abruptly recurved and joining costa with first vein.

Length of body, 2 mm.; of wing, 2.5 mm.

Holotype, female (BISHOP 2534), south slope of Mt. Araua, 1,000 ft., Raivavae I., Austral (or Tubuai) Is., Aug. 14, 1934, E. C. Zimmerman.

DISTRIBUTION: Austral Islands.

The type has six branches on the left arista and five on the right. The number of aristal branches is used in the key, following Malloch, as one of the distinctions between *A. dimorpha* Malloch and *A. tarsalis* Malloch, but this specimen suggests that aristal branching may be somewhat variable and not reliable for close distinctions. On the other hand, it might have been only an aberration of development in one or the other arista, and adequate material may eventually show that there is a typical number of branches for the species.

The combination of two pairs of dorsocentrals and entirely black scutellum distinguishes this species from all other known *Asteia* in the Pacific except *A. nigrithorax* Duda from Formosa.

Asteia acrosticalis Sabrosky, n. sp. (fig. 1).

Tiny species with two pairs of dorsocentral bristles, mesonotum pollinose, dark brown, and bearing two rows of acrostical hairs; pleuron and scutellum yellow.

Female: Dark brown and yellow: Head dark, the front, face except for broad white cross band below, occiput except ventrally, arista, basal antennal segments, and third segment above and below dark brown, the front somewhat lighter than the other areas; cheek, palp, and proboscis yellow; mesonotum entirely, and narrow anterodorsal corner of mesopleuron dark brown, dull, brownish pollinose; pleuron and scutellum yellow; abdomen brownish above, yellow below and on sides, the small tergites dark brown, genitalia and pregenital segments yellow; legs yellow; wing hyaline, faintly brown-tinted, the veins yellow; bristles of head and thorax black, except for yellow sternopleurals; halter knob chiefly yellow, but lightly browned at extreme base and apex.

Front almost square, four-tenths times width of head and wider than an eye, its length barely greater than width, sides parallel, surface dull, upper orbits thinly pollinose and only slightly shining; cheek broad posteriorly, strongly narrowing anteriorly, its width on anterior third only 0.07 times the eye height and less than one-fifth the breadth of third antennal segment, the latter subpyriform, narrow dorsally but broadly rounded below; arista with six long branches, counting the apical fork; orbital, inner and outer vertical and ocellar bristles all well developed, almost equally long and strong, ocellars slightly less than the others; second antennal segment dorsally at apex with a long, erect, bristle-like seta; vibrissa strong, the hairs along lower cheek margin weak.

Mesonotum with two pairs of postsutural dorsocentrals, 1 + 1 notopleurals and a strong pair of apical scutellars, the subapicals pale yellow, weak, and barely visible under high magnification; anterior third of mesonotum with two rows of brown acrostical hairs, as distinct as the dorsocentral and intra-alar hairs; one strong and one or two weak sternopleurals. Second vein gently curved toward costa, ending slightly beyond first vein.

Male: As described for female, the usual linear interfrontal stripes of male sex not evident in this species.

Length, 1.5 mm.

Holotype, female (US 62717), and allotype, Mt. Teroken, Moen [Wena] I., Truk, 90 m., under side of banana leaves by light, Jan. 5, 1953, J. L.

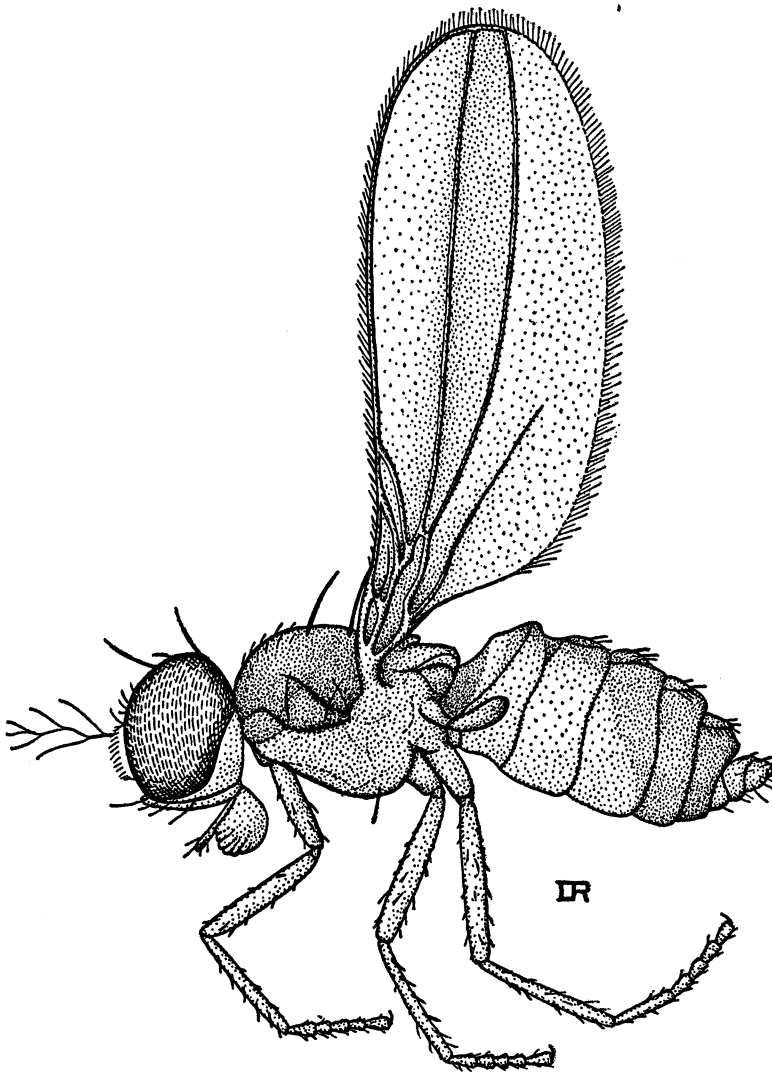


FIGURE 1.—*Asteia acrosticalis.* (Drawing by Dorothy Rainwater.)

Gressitt; 27 (9 males and 18 females) paratypes (US, BISHOP, KU). Truk: Eight (one male, seven females), same data as for holotype; one male, Mt. Teroken, Moen I., Dec. 1952, Gressitt; two females, Mt. Iron, Fefan I., 180 m., Jan. 1953, Gressitt; one female, Dublon I., 300-360 m., May 1946, Townes.

PALAU. Koror: Four (one male, three females), Jan.-Mar. 1954, Beardsley.

CAROLINE ATOLLS. Elato: Three (two males, one female), Elato I., Feb. 1953, Beardsley.

PONAPE. One male, Mt. Temwetemwensekir, 100 m., Jan. 1953, Gressitt; one female, southeast Nanpohnmal, Jan. 1953, Gressitt; one female, Jokaj I., 2 m. Jan. 1953, Gressitt, two males, sweeping roadside vegetation, Feb. 1948, Dybas; three (one male, two females), Palikir-Colonia, Jan. 1938, Esaki.

Fourteen additional specimens are in poor condition and have not been labeled paratypes. Four from Elato, three from Truk, and two each from Ponape and Koror duplicate the above records. Two were collected at Colonia, Ponape. The one new record in this material is that of a female from Lamotrek Island, Lamotrek Atoll, February 5, 1953, Beardsley.

The species apparently occurs at both high and low altitudes. Available records range from 2 to 360 meters. The Dublon Island specimen was collected by sweeping in a remnant of primary rain forest, one of the few areas of native vegetation remaining in Truk.

DISTRIBUTION: Caroline Is. (Palau, Elato Atoll, Truk, Ponape.)

The presence of acrostical hairs in *A. acrosticalis* and in *A. nigriceps* from Fiji is a unique feature in *Asteia,* as far as known to me, unless *Bryania* is also considered to fall there. However, the essential similarity of the two species to other *Asteia* makes me believe that they unquestionably belong to that genus.

The exact relation of the Caroline and Fijian species cannot be determined with certainty at this time, and it is believed best to describe the former as new rather than chance a misidentification. The known distribution of the other Pacific species of *Asteia* indicates restricted rather than broad distribution, and it seems likely that such widely separated populations as those in the Carolines and in Fiji will be found to be specifically different when adequate material from Fiji is available. The two original specimens of *A. nigriceps* are in poor condition, one lacking a head, the other lacking antennae and with the head buried in glue, so that those important structures cannot be studied. Information kindly furnished by Dr. F. van Emden on the dorsocentral and notopleural bristles and acrostical hairs supplemented Bezzi's description and made possible the placement of *A. nigriceps* in the key.

Asteia atrifacies Sabrosky, n. sp.

Tiny species, with three pairs of dorsocentral bristles, black antenna, dull black face and front, black-brown mesonotum, and yellow scutellum.

Male: Black or black brown, marked with yellow as follows: Proboscis, palp, posterior half of cheek, postalar callus and narrow prescutellar band, scutellum, legs, and lower two-thirds of pleuron below a broad, straight, brown stripe which extends across propleuron and upper third to two-fifths of meso- and pteropleuron; black face covered with brownish pollen centrally, gray pollen narrowly on sides; male genitalia reddish yellow, but possibly discolored; wing clear, veins yellow to light brown, with thickened dark brown stigma at and slightly beyond juncture of first two veins with costa; bristles of head and thorax black except for yellow sternopleurals.

Front 1.15 times as broad as long, the surface dull to weakly shining, upper orbits polished, up to pollinose area about bases of the vertical bristles; interfrontal stripes characteristic of males long and narrow, each appearing as a yellow stripe beside an upper orbit, and extending from vertex to and including base of orbital bristle; cheek narrow throughout, only slightly wider posteriorly than anteriorly, one-tenth height of eye and one-fourth breadth of third antennal segment; arista with five long branches, including apical fork; head bristles long and strong, the orbital, inner and outer verticals and vibrissa especially long, ocellars half as well developed but still evident; hairs along lower cheek margin weak.

Mesonotum only thinly pollinose, hence subshining chaetotaxy; 1 + 2 strong dorsocentrals, 1 + 1 much weaker notopleurals, 2 long and 1 weak and short sternopleurals, 1 long and strong apical scutellar, the subapical scutellar represented only by a weak yellow hair; no acrostical hairs. Wing with second vein curved gently toward costa and ending with first vein in a thickened stigmalike portion of costa.

Female: As described for male except for absence of linear interfrontal stripes.

Length, 1.25 mm.

Holotype, male (US 62718), Asan, Guam, Dec. 7, 1945, Gressitt. Allotype, female (US), Guam, Mar. 30, 1948, Dybas. Paratypes (CM, BISHOP), male, female (in copula), Saipan northeast coast, Jan. 8, 1945, Dybas; male, Palang (Pehleng), west coast 15 m., Ponape, Jan. 10, 1953, Gressitt.

DISTRIBUTION: Southern Mariana Is. (Guam), Ponape.

The black head is a characteristic feature. The white facial cross band is absent in no other known species with three pairs of dorsocentrals. Among the Pacific species it is absent only in *A. marquesana* Malloch, which is a large yellow species with two pairs of dorsocentrals, and in *A. atriceps* Malloch and *A. kraussi,* new species, also a yellow species but with four pairs of dorsocentrals.

The specimen from Ponape may represent a distinct though very closely related form, but the differences are slight and the specimen is not well preserved. The arista has six branches, counting the apical fork, but as indicated elsewhere, this difference may not be significant.

Asteia kraussi Sabrosky, n. sp.

Species with four pairs of dorsocentral bristles, bare arista, and yellow halter knob.

Female: Predominantly yellow, including all bristles and hairs; the ocellar tubercle, anterior third of oral margin narrowly, clypeus, and arista black; distal half of third antennal segment infuscated; face collapsed but apparently without the conspicuous white cross band often found in *Asteia;* mesonotum anteriorly and on sides reddish to brown, the middle third of posterior slope conspicuously whitish yellow, as is the scutellum;

pleuron with black stripe extending from anteroventral angle of propleuron above fore coxal cavity and along lower margin of mesopleuron; sternopleuron with large spot, fuscous above, becoming reddish below; membranous abdomen with black areas along sides of dorsum; wing clear, veins dark yellow.

Front approximately as long as broad, dull, upper orbits weakly shining; head in profile as long as high, the long axis of eye diagonal, and cheek thus narrowing anteriorly, at its narrowest slightly over one-sixth height of eye and one-half breadth of third antennal segment; arista bare, short, 1.4 times length of antenna; orbital and inner and outer vertical bristles strong and well developed, ocellars weak and short, hairlike; vibrissa long, though weaker than orbital or vertical bristles; lower cheek margin with a row of weak hairs.

Thorax slender; chaetotaxy: dorsocentrals 1 + 3, sternopleurals 1 strong and 1 weak, 1 apical scutellar; no acrostical hairs. Second vein not strongly recurved, curving gently forward to end in costa with first vein, as in *Asteia decepta* Becker (see Duda, Deutsche Ent. Zeitschr. **1927**: pl. 5, fig. 7).

Male: Interfrontal stripes characteristic of males linear, polished, half length of front; male genitalia large, knoblike, subshining; otherwise as described for female.

Length of body, 1.5 mm.; of wing, 1.5 mm.

Holotype, female (US 62719), Satawal Island, western Caroline Islands, Sept. 22, 1952, Krauss; allotype, male (BISHOP), same data.

One female (US), from Point Oca, Guam (in light trap, June 29, 1945, Bohart, Gressitt) is not in good condition but appears to be the same species.

DISTRIBUTION: Western Caroline Is. (Satawal I.); southern Mariana Is. ?

Asteia kraussi is very close to *A. atriceps* Malloch from the Marquesas, differing in the color of the halter knob and third antennal segment, as noted in the key. Further, in *A. atriceps* the propleuron and upper rim of the anterior coxal cavity are yellow, the front is slightly wider, and the black clypeus is much broader, so broad in fact that it apparently suggested the inappropriate name of *atriceps* for that yellow-headed species. These two species and *A. decepta* Becker from the Canary Islands are the only known species of *Asteia* with four pairs of dorsocentrals. Unlike *A. decepta,* however, *A. atriceps* and *A. kraussi* are further distinguished in the genus by having the arista absolutely bare. The only other known *Asteia* which has that character is *A. nudiseta* Sabrosky from Hawaii, a species with only three pairs of dorsocentral bristles and 1 + 2 notopleurals.

Genus **Astiosoma** Duda

Astiosoma Duda, 1927, Deutsche Ent. Zeitschr. **1927**: 119, 127 [type, *Astiosoma rufifrons* Duda, by original designation (n. gen., n. sp.) and monotypy].

Astiosoma, like the better known *Sigaloessa* Loew, differs from *Asteia* in having both hind cross vein and alula present, the latter margined with some long hairs. Unlike *Sigaloessa,* the species of *Astiosoma* have the vibrissal

angles widely separated, the facial ridges parallel, and two pairs of weak orbital bristles, which are often little more than slightly stronger hairs, generally lateroclinate. The known species have two pairs of dorsocentral bristles.

Astiosoma okinawae Sabrosky, n. sp.

Yellow species with disk of mesonotum black brown, subshining but finely pollinose.

Female: Predominantly yellow, with dark reddish-brown to black markings; front reddish yellow on anterior third, the remainder reddish brown, darkening posteriorly to brown occiput; ocellar tubercle shining black, finely rugose; face and cheek whitish yellow; anterior half of oral opening with narrow, polished black margin; arista black, third antennal segment brown on dorsal third. Thorax yellow in ground color; mesonotum up to sides and humeri dark reddish brown to black brown on anterior half or more, paling to reddish on posterior slope; a broad black-brown stripe adjacent to notopleural rim and extending across propleuron and upper half of mesopleuron to base of wing; large black-brown spots on sterno- and hypopleuron; subscutellum and postscutellum black. Dorsum of abdomen dark brown on segments I to IV, entire apex (segment V through genitalia) and venter bright yellow. Knob of halter black, at least on outer surface. Legs entirely yellow. Wing hyaline, veins yellow. Bristles and hairs black except those of legs and apex of abdomen.

Front slightly longer than broad, sides approximately parallel; vibrissal angles widely separated, each located below anterior margin of an eye; cheek broad behind, narrowing anteriorly, at midlength equal to one-sixth height of eye and slightly over half the breadth of third antennal segment, the last barely longer than broad; arista short pubescent, main trunk weakly zigzag under high magnification; inner and outer vertical bristles strong, equal; two pairs of upper orbitals, widely divergent postverticals and proclinate divergent ocellars all short and appearing little more than strong hairs.

Thorax finely brown pollinose, though still quite shining; mesonotal hairs sparse, a median acrostical row, ending opposite the foremost dorsocentral bristles, and dorsocentral and intra-alar rows; chaetotaxy: 1 + 1 notopleural, 1 postalar, 1 posterior intra-alar, 2 dorsocentral, 1 subapical and 1 apical pairs of scutellar bristles, in addition to which a presutural hair is stronger and more outstanding than other hairs and appears under high magnification as a short bristle; 1 strong and 1 weak sternopleurals; subapical scutellar bristles relatively strong compared with most asteiids, half the length of apicals.

Wing as figured for *Astiosoma rufifrons* Duda [Duda, 1927, Deutsche Ent. Zeitschr. **1927**: pl. 5, fig. 6, opposite p. 144; 1934, IN Lindner, Die Fliegen der Palaearktischen Region **6** (1): family 58 b, Asteiidae, pl. 1, fig. 3], but first posterior cell slightly wider at its widest point, in proportion to its width at apex of wing, the fourth vein appearing more strongly curved and anteriorly concave.

Length of body, 1.75 mm.; of wing, 2.0 mm.

Holotype, female (US 62720), and paratype, female, Okinawa, 1945, W. D. Field, the holotype dated July 8.

DISTRIBUTION: Okinawa.

This species is close to the genotype, *A. rufifrons* Duda, described from Hungary. In several genera of this small family, very closely related species are unexpectedly turning up in far-flung areas of the world.